

REMARKS

Claims 1 and 7 have been amended to recite that the electrolyte comprises two or more of the presently claimed aprotic organic solvents; that the presently claimed electrolyte further includes two or more phosphazene compounds, wherein each aprotic organic solvent has a difference of a boiling point from that of at least one phosphazene compound of not more than 25°C; and that the number of kinds of the phosphazene compounds is equal to or larger than that of the aprotic organic solvents. Support for amended Claims 1 and 7 may be found at, for example, Claims 3 and 9 and paragraphs [0026], [0043], [0095], [0105] and [0118]. Claims 2, 3, 8 and 9 have been canceled. Claims 6 and 11 have been amended to correct their dependencies. Upon entry of this Amendment, which is respectfully requested, Claims 1, 6, 7, 10 and 11 will be pending.

Response to Claim Rejections Under §102

Claims 1, 6, 7 and 10 have been rejected under 35 U.S.C. §102(b) as allegedly being anticipated by JP 09-213348 to Kusumoto et al. Applicants respectfully traverse.

Without commenting on the merits of the rejection, Claims 1 and 7 have been amended to incorporate the subject matter of Claims 3 and 9, respectively, which are not part of the present rejection. Accordingly, withdrawal of the rejection is respectfully requested.

Claim Rejections Under §103

A. Claims 1-3 and 6 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over JP 2003-249233 to Ootsuki et al.;

B. Claims 1-3 and 6 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over WO/2003/005479 to Otsuki et al.; and

C. Claims 7-11 have been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over WO/2003/005478 to Otsuki et al.

Applicants respectfully traverse the above rejections.

The present claims are directed to a non-aqueous electrolyte/electrolyte for a polymer cell comprising two or more aprotic organic solvents selected from the group consisting of ethylene carbonate, propylene carbonate, diethyl carbonate, dimethyl carbonate, ethyl methyl carbonate and methyl formate, and a support salt, which further includes two or more phosphazene compounds, wherein each aprotic organic solvent has a difference of a boiling point from that of at least one phosphazene compound of not more than 25°C, and the number of kinds of the phosphazene compounds is equal to or larger than that of the aprotic organic solvents. See, Claims 1 and 7.

According to the presently claimed invention, when the presently claimed electrolyte contains, for example, an aprotic organic solvent having a low boiling point and another aprotic organic solvent having a high boiling point, the phosphazene compound corresponding to the low-boiling-point aprotic organic vaporizes at a temperature near to that at which the low-boiling-point aprotic organic solvent vaporizes. Thus, the risk of igniting-firing the vaporized aprotic organic solvent is reduced. See, paragraph [0025] of the specification as filed.

Moreover, even after the vaporization of the low-boiling-point aprotic organic solvent and the corresponding phosphazene compound, the high-boiling-point aprotic organic solvent and the corresponding phosphazene compound, having a boiling point near to that of the high-boiling-point aprotic organic solvent, exist in the electrolyte. Thus, the risk of igniting-firing the remaining high-boiling aprotic organic solvent is reduced. See, paragraph [0025] of the specification as filed.

In this regard, Applicants direct the Examiner's attention to the electrolyte of Example 1 of the present specification. The electrolyte of Example 1 contains DEC, having a boiling point of 127°C and additive A having a boiling point of 230°C, wherein the difference between the boiling points is more than 25°C. However, the electrolyte of Example 1 further contains additive B having a boiling point of 125°C, which has a boiling point difference from that of DEC of not more than 25°C. Thus, the cell represented by Example 1 does not ignite during either the nail penetration test or the overcharge test, and, as such, is demonstrated to be very safe, even in an emergency. Accordingly, when every aprotic organic solvent in the electrolyte has a difference of a boiling point from that of at least one phosphazene compound of not more than 25°C, the risks of ignition in the cell and out of the cell can be significantly reduced, even when there is a combination of an aprotic organic solvent and a phosphazene compound wherein the difference between the boiling points is more than 25°C.

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Application No.: 10/583,412

Attorney Docket No.: Q95438

JP '233, WO '479 and WO '478 fail to disclose or suggest any reason why one skilled in the art would choose two or more aprotic organic solvents and two or more phosphazene compounds, wherein the difference between the boiling points is not more than 25°C.

Thus, JP '233, WO '479 and WO '478 fail to render obvious the present claims. Accordingly, withdrawal of the rejections is respectfully requested.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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